

## **REMARKS**

This amendment is responsive to the non-final Office Action mailed on November 10, 2005. Claims 1-14 and 19-23 are pending and claims 1, 2, 4, and 6 have been amended. Claims 3, 10-11, 19-21, and 23 have been cancelled. In view of the foregoing amendment, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

### **Drawing Correction and Amendments to the Written Description**

Applicants have amended the drawings to correct minor labeling errors in Fig. 1. In Fig. 1, one occurrence of reference numeral 122 has been revised to read reference numeral 120, one occurrence of reference numeral 124 has been revised to read reference numeral 126, and a "Prior Art" designation has been added. Applicants have also modified the written description so that the description of Fig. 1 more accurately conforms to the drawing of Fig. 1. Applicants submit that no "new matter" has been introduced into the specification by these amendments.

### **Rejections under 35 U.S.C. § 103(a)**

#### **Claims 1-11, 13, 14, and 19-23**

Claims 1-11, 13, 14, and 19-23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Applicants' admitted prior art Fig. 1 (hereinafter *APA*) in view of U.S. Patent No. 5,994,178 to *Wu*. Claims 3, 10, 11, 19-21, and 23 have been cancelled. The Examiner admits on page 4 of the November 10, 2005 Office Action that *APA* fails to teach "selectively

depositing the silicon dioxide in the STI region without depositing the silicon dioxide on the first and second active regions.” The Examiner contends on page 4 of the November 10, 2005 Office Action that *Wu* teaches “filling STI trenches with an LPD oxide.” The Examiner further contends on page 4 of the November 10, 2005 Office Action that it would have been obvious to correct the deficiency of *APA* with the disclosure in *Wu* because “Wu teaches the use of an LPD oxide to fill the STI trench produces a planar surface and lower budgets.” Applicants respectfully disagree with the Examiner's contentions for the reasons set forth in the following remarks.

Specifically, amended claim 1 sets forth that the silicon dioxide is selectively deposited in the shallow trench isolation region “without depositing the silicon dioxide on the first and second active regions by nucleating the deposition of the silicon dioxide on the buried oxide layer.” *Wu* discloses that the silicon dioxide is deposited in a shallow trench isolation region in a bulk silicon substrate. Consequently, *Wu* fails to disclose that the deposition of the silicon dioxide is nucleated on a buried oxide layer because *Wu* fails to disclose or suggest the use of an SOI wafer. Moreover, *Wu* fails to provide a suggestion that the disclosed method for depositing silicon dioxide in a shallow trench isolation region would have been compatible with an SOI wafer in which the shallow trench isolation region extends to the buried oxide layer. In the absence of hindsight based upon Applicants’ own specification, *APA* also fails to provide a suggestion that would have motivated a person having ordinary skill in the art to nucleate the deposition of the silicon dioxide on the buried oxide layer.

Consequently, for at least these reasons, the Examiner has failed to properly support that independent claim 1, as amended, is *prima facie* obvious. Hence, Applicants submit that dependent claim 1 is patentable over *APA* in view of *Wu*.

Because claims 2, 4-9, 13, 14, and 22 depend from independent claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, each of these claims recites a unique combination of elements not taught, disclosed or suggested by *APA* in view of *Wu*.

As a specific example, claim 8 recites one such unique combination of elements, namely, “cleaning the shallow trench isolation region before selectively depositing silicon dioxide”. The Examiner contends on page 5 of the Office Action that this is a “conventional step known to a skilled artisan,” that the Applicants’ specification alludes to the conventionality, and that the “use of conventional materials to perform there [sic] known functions in a conventional process is obvious (MPEP 2144.07).” Applicants note that *Wu* provides no disclosure or suggestion of cleaning the shallow trench isolation region before filling with oxide. Page 7 of Applicants’ specification alludes to the conventionality of the chemicals used for the cleaning step, but does not disclose that it is conventional to clean the shallow trench isolation region before filling with oxide. MPEP § 2144.07 stands for the proposition that the selection of a known material based on its suitability for its intended use may support a *prima facie* obviousness determination. Applicants are not selecting a known material. Applicants are not claiming a known cleaning material or composition. Instead, Applicants’ claim 8 sets forth cleaning a shallow trench isolation region. Consequently, MPEP § 2144.07 is not applicable for constructing a rejection of claim 8. For at least this additional reason, the Examiner has failed to

properly support *prima facie* obviousness of dependent claim 8. Claim 9 is further patentable for similar additional reasons as claim 8.

### Claim 12

Claim 12 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Applicants' admitted prior art Fig. 1 (hereinafter *APA*) in view of U.S. Patent No. 5,851,900 to *Chu et al.* Applicants traverse the rejection.

Initially, claim 12 is rejected over a combination of references that omits *Wu*, which was required to reject independent claim 1 from which claim 12 depends. According to MPEP § 2143.03, all the claim limitations must be taught or suggested by the prior art to establish *prima facie* obviousness of a claimed invention. Consequently, Applicants submit that the rejection is *ab initio* improper. Moreover, claim 12 depends from claim 1 and, therefore, is patentable for at least the same reasons as claim 1.

*Chu et al.* fails to correct the deficiencies of *Wu*. Specifically, *Chu et al.* discloses shallow trench isolation regions formed in a bulk silicon substrate, not an SOI wafer, and the use of an oxide layer (22) lining the shallow trench isolation region to provide the selective deposition of silicon oxide. See *Chu et al.* at col. 4, lines 15-16.

### Conclusion

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments and remarks, this application is submitted to be in complete condition for allowance and, accordingly, a timely

notice of allowance to this effect is earnestly solicited. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicants do not believe fees are dues in connection with filing this communication. If, however, any fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,

7 February 2006  
Date

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**Attachments**

**Amendments to the Drawings:**

The attached sheet of drawings includes a change to Fig. 1. The sheet, which includes Figs. 1-4, replaces the original sheet including Figs. 1-4. In Figure 1, two reference numerals have been revised and a "Prior Art" designation has been added.

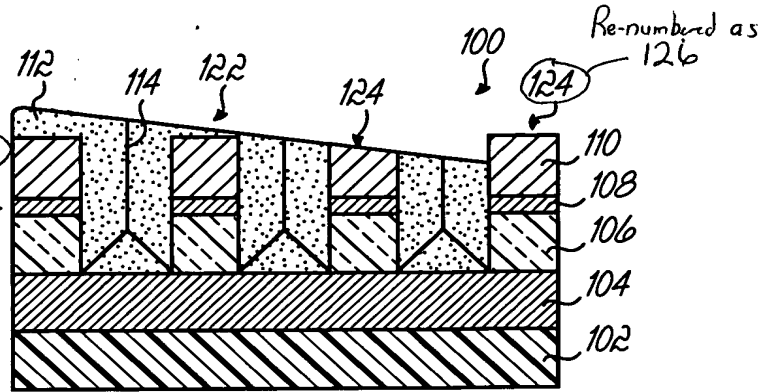
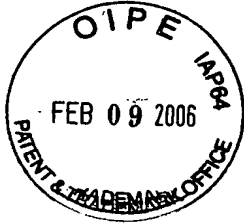
Attachment: Replacement Sheet

Annotated Sheet Showing Changes

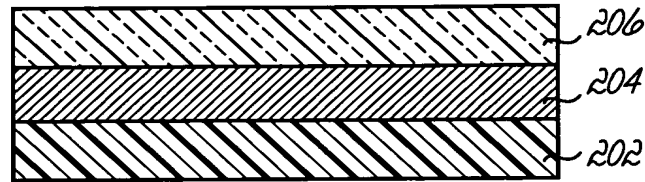
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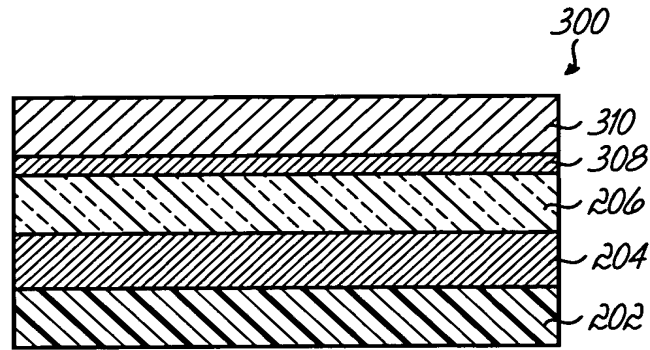
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as 120



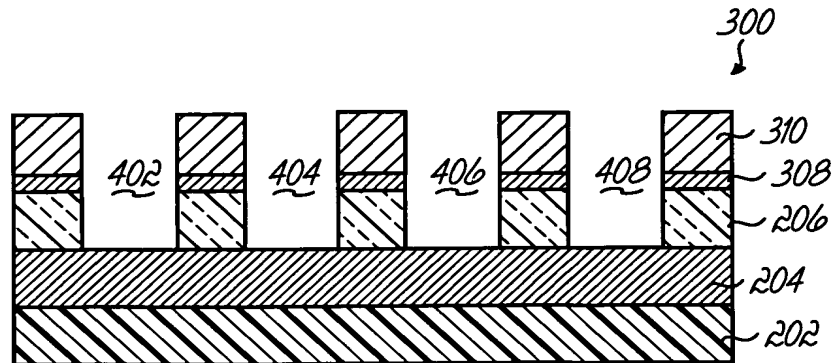
**FIG. 1**  
PRIOR ART



**FIG. 2**



**FIG. 3**



**FIG. 4**